Available online at www.sciencedirect.com

ScienceDirect

Procedia Social and Behavioral Sciences 7(C) (2010) 151–155

Procedia Social and Behavioral Sciences

www.elsevier.com/locate/procedia

International Conference on Learner Diversity 2010

The *Bahasa Melayu* R-SPQ-2F: A Preliminary Evidence of its Validity

Seri Bunian Mokhtar[a], Goh Swee Choo[b], Mohd Yusof Husain[a], Saemah Rahman[c,*]

[a]*Polytechnic of Sultan Azlan Shah, 35950, Behrang, Perak, Malaysia*
[b]*Sultan Idris Education University,35900, Tanjong Malim, Perak, Malaysia*
[c]*Faculty of Education, Universiti Kebangsaan Malaysia, 43600, Bangi, Selangor, Malaysia*

Abstract

This study provided preliminary evidence for the validity of the *Bahasa Melayu* (Malay Language) version of the Revised Two-Factor Study Process Questionnaire (R-SPQ-2F) from a sample of 160 final year engineering students. The internal consistency alpha of the R-SPQ-2F scales was found to be 0.66 (Surface Approaches) and 0.79 (Deep Approaches). Results indicated a two factor solution with eigenvalues exceeding 1.0 and KMO value of 0.76 while the Barlett test was significant (Chi Square = 650,045, $p < 0.05$). Further studies with larger samples and other disciplines is needed to provide further evidence of the validity of the *Bahasa Melayu* R-SPQ-2F.

Keywords: R-SPQ-2F; Deep approaches; Surface approaches; Validity, Bahasa Melayu

1. Introduction

Research on learning approaches is very important in improving the quality of student learning (Maznah & Yoong Suan, 1995). Learning approaches referred to the way students dealed with academic tasks that were related to their learning outcomes (Biggs, 1987). Learning approaches is a behavior of students affected by their learning environment. Construction of learning approaches came from a series of important studies conducted by Marton and Saljo (1976) which has been published in their highly acclaimed book, *The Experience of Learning* (1984). Marton and Saljo (1976) examined the processing information of a group of university students. The study focused on what they have learned previously in their subject in cognitive psychology and how much they learned. In the study, students were required to read the article and then answered some questions about the article content. The students were also asked to explain how they solved the task. Students using surface processing would focus on the words, and tried to memorize as much as they could while students using deep processing had the intention to acquire deeper understanding of the subject matter.

*Corresponding Author. Tel.: +6019-259 6518, fax: +603-8925 4273
E-mail address: saemah@ukm.my

1877-0428 © 2010 Published by Elsevier Ltd. Open access under CC BY-NC-ND license.
doi:10.1016/j.sbspro.2010.10.022

The finding was consistent with earlier works of Ausubel (1961), about the differences between meaningful learning and rote learning. Marton and Saljo (1976) subsequently named the two different levels of processing as deep learning approaches and surface learning approaches.

According to Biggs (1987), a student who adopts a deep approach is interested in the academic work and enjoys the process of doing, finding the meaning in the work, making meaning and relating to own experiences and is able to integrate parts or aspects of a task (eg, linking evidence to conclusions). A deep approach learner relates the findings to previous knowledge, and tries to build a theory of the task or by forming hypotheses. According to Biggs (1987), a student who adopts surface approach, sees the work as a condition to be fulfilled, sees part or aspect of work as something separate and not connected to each other or with other tasks. The student is concerned about the time taken to do the task, avoids other meanings carried by the task, depends on memorization and tries to produce work that only have surface meaning.

Learning approach has been shown to depend on contextual factors (eg; teaching and learning activities, assessment procedures, the institution) and personality factors (eg; gender, age and prior knowledge) (Zeegers 2001). Approach to learning was likely to vary according to student perceptions of learning context, difficulty of assignments, and workload demands (Ramsden, 1983). However, learning approaches could also be learned and improved (Zeegers, 2001). Approaches to learning could be described as how students learned in an environment with different teaching and learning methods and strategies (Biggs, 1999). Learning approaches was a learning process chosen by the student, and usually affected the quality of learning (Biggs, 1987).

Various studies have been done in regard of learning approaches and gender differences. Studies conducted by the Sadler-Smith (1996) showed that there are differences in learning approaches between male and female. The instrument used in her study was the Revised Approaches to Studying Inventory (Entwistle & Ramsden, 1983). The study of learning approaches and gender were also carried out by Watson (1997) to 147 students. The results showed that there were no gender differences in learning approaches. According to the study by Kek, Darmawan and Chen (2007), gender was seen as one of the factors that influenced student learning where boys tended to adopt surface approaches and girls tended to use deep approach.

Besides the Revised Approaches to Studying Inventory, there are other instruments that had been developed by many researchers to measure learning approaches, including the Lancaster Approaches to Studying Questionnaire (LASQ) (Ramsden, 1983), Inventory of Learning Styles in Higher Education (ILSHE) (Vermunt, 1994) and Approaches to Study Skills Inventory for Students (ASSIST) (Tait, Enwistle, & McCune, 1998). However, one instrument that had been widely used to measure approaches to learning was the Study Process Questionnaire (SPQ) by Biggs (1987). However, since its inceptions, there were criticism about its construct (Kember & Leung, 1998) and therefore in 2001, the Revised Two-Factor Study Process Questionnaire (R-SPQ-2F) (Biggs et al., 2001) was developed.

2. The SPQ and the R-SPQ-2F

In the theoretical construct of the SPQ (Biggs, 1987), three approaches to learning (surface, deep, and achieving) were proposed, each with a motive and strategy subscale. Each of the subscales contains seven items and is answered on a 5-point Likert-type scale where: (1) ('This item is *never* or *only rarely* true of me' and (5) ('This item is *always* or *almost always* true of me'). Subscale scores are calculated by summing up the scores on the relevant items to indicate those who make greater use of that particular approach to learning. Biggs (1987) conducted a study with Australian students which investigated the construct and internal reliability of the SPQ. Subscale level factor analysis by Biggs (1987) did not confirm the three-factor solution (surface, deep, and achieving), but instead yielded a two-factor solution. Factor 1 was determined by the surface motive and surface strategy subscales, while Factor 2 was determined by the deep and achieving subscales. Internal consistency alpha values for the three scales ranged from 0.73 (surface approach) to 0.81 (deep approach), while for the six subscales, it ranged from 0.61 (surface motive) to 0.77 (achieving strategy).) Since its first validation, other studies using the SPQ have also indicated a two factor solution with deep-achieving and surface approaches, but also an achieving motive subscale loading onto both factors (Watkins & Akande, 1992; Snelgrove & Slater, 2003). Cross-cultural research that investigates the reliability of the SPQ has used the questionnaire translated into various languages. In the Arabic version, Albaili (1995) shows similar internal consistency with the three approaches ranging from 0.67 to 0.73, and lower internal consistency ranging from 0.49 to 0.71 for the six subscales. The estimates of internal consistency of a Swedish version (Watkins & Dahlin, 1997) for the six subscales ranged from 0.41 to 0.75, but did not report on the three main scales. The

above mentioned studies report a two-factor solution similar to those found by Watkins and Akande (1992) and Snelgrove and Slater (2003), where the achieving motive subscale divide between the two factors.

The R-SPQ-2F is a refined version of Biggs' (1987) original Study Process Questionnaire (SPQ). In the theoretical framework of the SPQ, three approaches to learning (surface, deep and achieving) are proposed, each with a motive and strategy subscale. Kember and Leung (1998) conducted a study with over 7000 Hong Kong students that investigated the construct and internal reliability of the SPQ. The results indicated that a model with two factors had the best fit. The R-SPQ-2F consists of 20 items scored on a five-point Likert scale and categorizes students into two different approaches to learning. The R-SPQ-2F consists of two major scales, the deep approach (PM) and surface approaches (PP), with four subscales, the PM intentions, PM strategies, PP intentions and PP strategies. Students have to indicate to what extent each item is true for them. The response categories are: (1) rarely or never true for me, (2) sometimes true for me, (3) half of the time true for me, (4) often true for me, (5) always or almost always true for me. Kember and Leung (1998) have shown that the SPQ was suitable for use with only two scales, the surface and deep approaches with its intentions and strategies through a confirmatory factor analysis (CFA) to produce a confirmation of a more simple version of the R-SPQ-2F for use in monitoring learning approaches. This present study aimed to provide preliminary evidence for the validity of the *Bahasa Melayu* version of the R-SPQ-2F. The *Bahasa Melayu* version was translated from the original by Goh in 2009 following the process of independent translation and back-translation.

3. The purpose of this Study

The purpose of this study was to provide preliminary evidence of validity to the *Bahasa Melayu* Revised Two-Factor Study Process Questionnaire (BM R-SPQ-2F) that measures the deep and surface approaches to learning.

4. Methodology

4.1Participants

The survey was conducted at the technical higher institution and involved final year students enrolled in the engineering programs. A total of 160 students participated in this study. The BM R-SPQ-2F contained part A and part B. Part A contained items related to the student demographics while Part B contained 20 items of the BM R-SPQ-2F.

4.2 Analysis

Students' approaches to learning were measured by the BM R-SPQ-2F to measure the results of innovations aimed at supporting deep-level learning. The questionnaire categorized items into two different approaches to learning: a deep and surface approach to learning. The researchers used SPSS 11.5 for Windows to assist in the data analysis of the variables measured in this study. A principal component factor analysis was used in this study. Factor analysis has been usually known as a statistical technique for data reduction. However, it was also useful in searching for structure among a set of variables. Particularly, the principal component factor analysis provided direct insight into the interrelationships among variables and empirical support for addressing conceptual issues relating to the underlying structure of the data (Hair, Anderson, Tatham, & Black, 1998). Cronbach Alpha coefficient was used to assess internal consistency of each scale.

5. Results

Table 1 showed Cronbach Alpha value for learning approaches scales. The validity of the item in the two-domain approach to learning measuring the deep approach was 0.80 and the surface approach was 0.66. Mohd Najib (1999) suggested a minimum value equal to 0.60. In this study, Cronbach Alpha values for all variables were more than 0.60, therefore the acquired value provided the internal consistency similar to Biggs et al (2001). Factor analysis (Table 3) were performed using varimax rotation to confirm the two constructs of deep surface approaches. Results showed that the two factor solution had eigen values exceeding 1.0. The value of Kaiser-Meyer-Olkin measure of Sampling Adequacy at 0.76 was greater than 0.5 (Table 2), thus was adequate for intercorrelation while the Barlett test was significant (Chi Square = 650,045, $p < 0.05$). The Measure of Sampling Adequacy MSA for anti-image correlation matrix was more than the value of 0.50. Item PP2 and PP4 were dropped based on the criteria by Stevens (1992), where each item should exceed 0.30. Based on the findings, the acquired instrument was relevant to

explain the internal structure of each scale for use in the Malay Language. According to Biggs et al (2001), the R-SPQ-2F can be used for academic research and by lecturers who wish to know the learning approaches used by their students so that learning can be tailored to their teaching approaches and learning environment. Similarly, the BM R-SPQ-2F can also be used in the Malaysian context.

Table 1. Cronbach Alpha value for learning approaches scales

Variables	Item	Cronbach Alpha in this study	Cronbach Alpha published in 2001 (Biggs et al)
Surface	10	0.66	0.64
Deep	10	0.79	0.73

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.760
Bartlett's Test of Sphericity	Approx. Chi-Square	650.045
	df	190
	Sig.	.000

Table 3. Factor Analysis

Item	Deep	Surface
PM1	.506	
PM 2	.441	
PM3	.591	
PM4	.619	
PM5	.579	
PM6	.619	
PM7	.736	
PM8	.652	
PM9	.498	
PM10	.667	
PP1		.351
PP2		-
PP3		.406
PP4		-
PP5		.661
PP6		.603
PP7		.628
PP8		.424
PP9		.560
PP10		.604
Varians %	19.160	13.132
Eigenvalues	3.880	2.578

6. Conclusion

The researchers hope that this preliminary evidence for the validity of the BM R-SPQ-2F would become an outset of a more comprehensive study program to understand Malaysian students' process of learning which is not

well documented in the literature. To provide stronger evidence for the adequacy of the BM R-SPQ-2F, future studies need to examine its validity with larger samples involving students undertaking other university majors and to correlate the results with the students grade point average scores. To this end, the original SPQ (Biggs, 1987) can also be used so that the adequacy of the two versions, the BM R-SPQ-2F and SPQ for use in Malaysia can be compared.

References

Albaili, M.A. (1995). An Arabic version of the Study Process Questionnaire: Reliability and validity. *Psychological Reports, 77*, 1083-1089.

Bigg, J, B. , Kember, D. dan Leung, D. Y. P. (2001). The revised two-factor study process questionnaire: R-SPQ-2F. *British Journal of Educational Psychology.* 71. 133-149.

Biggs, J. B. (1987). *Student Approaches to Learning and Studying.* Melbourne: Australian Council for Education Research.

Biggs, J. B. (1999). *Teaching for Quality Learning at University.* Buckingham: Open University Press.

Entwistle, N. J. & Ramsden, P. (1983). *Understanding student learning,* London: Croom-Helm.

Hair, J. F., Anderson, R.E., Tatham, R. L., & Black, W. C (1998). *Multivariate data analysis (5th ed.).* New Jersey: Prentice-Hall.

Kek Y.C , Darmawan, I. G. N dan Chen Y.S . (2007). Family, learning environments, learning approaches and student outcome in Malaysia private university. *Internationan Education Journal*. 8(2), ms 318-336. Learning Development.

Kember, D. and Leung, D.Y.P. (1998), "Influences upon students' perceptions of workload", *Educational Psychology*, Vol. 18 No. 3, pp. 293-307.

Marton, F., & Säljö, R. (1976a). On qualitative differences in learning, outcome and process . *British Journal of Educational Psychology*, *46*, 4–11.

Maznah Ismail & Yoong Suan. (1995). Kajian terhadap pendekatan pembelajaran pelajar. *Jurnal Pendidik dan Pendidikan* 14 11-17.

Mohd Najib Abd. Ghafar. (1999). *Penyelidikan Pendidikan*. Johor: Penerbit UniversitiTeknologi Malaysia

Ramsden, P. (1983). *The lancaster approaches to studying and course perceptions questionnaire: Lecturer's handbook*. Oxford: Educational Methods Unit.

Sadler - Smith. E. (1996). Approaches to studying: Age, gender and academic performance.*Educational Studies* 22 (3): 367 - 379.

Stevens, J. P. (1992). *Applied multivariate statistics for the social sciences (2nd ed.).* Hillsdale: Lawrence Erlbaum.

Snelgrove, S & Slater,J. (2003).Approaches to learning: pcychometric testing of Syudy Process Questionnaire. *Methodological issues in nursing studies*.43, 496-505.

Tait, H., Enwistle, N., & Mccune, V. (1998). ASSIST: A reconceptualisation of the approaches to studying inventory. In C. Rust (Ed.), *Improving student learning:Improving students as learners* (pp. 262-271). Oxford: Oxford Centre for Staff

Trigwell, K. *et al.* (1999). "Relations between teachers' approaches to teaching and students' approaches to learning." *Higher Education.* 37. 57-70.

Vermunt, J. D. (1994). *Inventory of learning styles in higher education*. Maastricht: Maastricht University.

Watson. S.A. (1997). Learning style preferences: A comparison of traditional andnontraditional interior design students. Disertasi Education Doctor. University of Arkansas. *Dissertation Abstracts International* 59 (01): 2999A.

Watkins, D., & Dahlin, B. (1997). Assessing the approaches to learning in Nigerian. *Phcyological Report*. 81, 131-136.

Watkins, D., & Akande, A. (1992). Assessing the approaches to learning in Sweden. *Assessment and Evaluation in Higher Education*, 17(1), 11-20.

Zeegers, P. (2001). "Approaches to learning in science: A longitudinal study."*British Journal of Educational Psychology.* 71. 115-132.